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(पहला पुनरीक्षण)

Indian Standard
RIGID LIFERAFTS — SPECIFICATION
(*First Revision*)

ICS 47.080

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BUREAU OF INDIAN STANDARDS
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Marine Engineering and Safety Aids Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was first published in 1966. This revision incorporates updated International Maritime Resolution requirements.

This standard is based on the statutory rules, and the provisions of the International Convention for the Safety of Life at Sea, 2000.

Liferaft is one of the life saving appliances required to be fitted on board ships, and is designed to carry persons in water.

Notwithstanding what is stated in this standard, life saving appliances carried or fitted on board merchant navy ships shall conform to the statutory rules in this behalf issued under the *Merchant Shipping Act*, 1958, with amendments and shall be subject to the approval of the Government of India.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

RIGID LIFERAFTS — SPECIFICATION

(*First Revision*)

1 SCOPE

This standard specifies the constructional requirements, equipments and tests for rigid liferafts.

2 GENERAL REQUIREMENTS

2.1 Liferafts prescribed in this part shall,

- a) be constructed with proper workmanship and materials;
- b) not be damaged in stowage throughout the air temperature range -30°C to $+65^{\circ}\text{C}$;
- c) when immersed in seawater during their use, operate throughout the seawater temperature range -1°C to $+30^{\circ}\text{C}$;
- d) where applicable, be rot-proof, corrosion resistant, and not be unduly affected by seawater, oil or fungal attack;
- e) where exposed to sunlight, be resistant to deterioration;
- f) be of a highly visible color on all parts where this will assist detection;
- g) be fitted with retro-reflective material where it will assist in detection and in accordance with the recommendation of IMO resolution A.658 (16) ; and it applies to all ships;
- h) if they are to be used in a seaway, be capable of satisfactory operation in that environment;
- j) be clearly marked with approval information, including the administration which approved it and any operational restrictions; and
- k) where applicable, be provided with electrical short-circuit protection to prevent damage or injury.

3 CONSTRUCTION

3.1 All materials and components used in the construction and repair of liferafts shall be of good quality and suitable for the intended purpose and shall not deteriorate from the effects of weathering on boardships under the conditions of usual stowage, nor from contact with salt water or spray.

3.2 Liferaft shall be so constructed as to be capable of withstanding exposure for 30 days afloat in all sea conditions.

3.3 The liferaft shall be so constructed that when it is dropped into the water from a height of 18 m, the liferaft

and its equipment will operate satisfactorily. If the liferaft is to be stowed at a height of more than 18 m above the waterline in the lightest seagoing condition, it shall be of a type which has been satisfactorily drop tested from at least that height.

3.4 The floating liferaft shall be capable of withstanding repeated jumps on to it from a height of at least 4.5 m above its floor both with and without the canopy erected.

3.5 The liferaft and its fittings shall be so constructed as to enable it to be towed at a speed of 3 knots in calm water when loaded with its full complement of persons and equipment and with one of its sea anchors streamed.

3.6 The liferaft shall have a canopy to protect the occupants from exposure which is set in place when the liferaft is launched and waterborne. The canopy shall comply with the following:

- a) It shall provide insulation against heat and cold by means of either two layers of materials separated by an air gap or other equally efficient means. Means shall be provided to prevent accumulation of water in the air gap;
- b) Its interior shall be of a colour that does not cause discomfort to the occupants;
- c) Each entrance shall be clearly indicated and be provided with efficient adjustable closing arrangements which can be easily and quickly opened by persons clothed in immersion suits from inside and outside, and closed from inside the liferaft so as to permit ventilation but exclude seawater, wind and cold. Liferaft accommodating more than eight persons shall have at least two diametrically opposite entrances;
- d) It shall admit sufficient air for the occupants at all times, even with the entrance closed;
- e) It shall be provided with at least one viewing port;
- f) It shall be provided with means for collecting rain water;
- g) It shall be provided with means to mount a survival craft radar transponder at a height of at least 1 m above the sea; and
- h) It shall have sufficient headroom for sitting occupants under all parts of the canopy.

3.7 The buoyancy of the liferaft shall be provided by approved inherently buoyant material placed as near as possible to the periphery of the liferaft. The buoyant material shall be fire-retardant or be protected by a fire-retardant covering.

3.8 The floor of the liferaft shall prevent the ingress of water and shall effectively support the occupants out of the water and insulate them from cold.

4 MINIMUM CARRYING CAPACITY AND MASS OF RIGID LIFERAFTS

4.1 Liferaft shall not be approved which has a minimum carrying capacity of less than 6 persons.

4.2 Unless the liferaft is to be launched by an approved launching appliance or is not required to be stowed in a position providing for easy side to side transfer, the total mass of the liferaft, its container and its equipment shall not be more than 185 kg.

4.3 The number of persons which a liferaft shall be permitted to accommodate shall be equal to the lesser of,

- a) Greatest whole number obtained by dividing by 0.096 the volume, measured in cm³ of the buoyancy material multiplied by a factor of 1 minus the specific gravity of that material; or
- b) Greatest whole number obtained by dividing by 0.372 the horizontal cross-sectional area of the floor of the liferaft measured in m²; or
- c) Number of persons having an average mass of 75 kg, all wearing immersion suits and life-jackets, that can be seated with sufficient comfort and headroom without interfering with the operation of any of the liferaft's equipment.

5 RIGID LIFERAFT FITTINGS

5.1 Life lines shall be securely becketed around the inside and outside of the liferaft.

5.2 The liferaft shall be fitted with an efficient painter of length equal to not less than 10 m plus the distance from the stowed position to the waterline in the lightest seagoing condition or 15 m, whichever is the greater. The breaking strength of the painter system, including its means of attachment to the liferaft, except the weak link shall be not less than 15 kN for liferafts permitted to accommodate more than 25 persons, not less than 10 kN for liferafts permitted to accommodate 9 to 25 persons and not less than 7.5 kN for any other liferaft.

5.3 A manually controlled lamp shall be fitted to the top of the liferaft canopy. The light shall be white and be capable of operating continually for at least 12 h

with a luminous intensity of not less than 4.3 cd in all directions of the upper hemisphere. However, if the light is a flashing light it shall flash at a rate of not less than 50 flashes and not more than 70 flashes/min for the 12 h operating period with an equivalent effective luminous intensity. The lamp shall light automatically when the canopy is erected. Batteries shall be of a type that does not deteriorate due to dampness or humidity in the stowed liferaft.

5.4 A manually controlled lamp shall be fitted inside the liferaft capable of continuous operation for a period of at least 12 h. It shall light automatically when the canopy is erected and be of sufficient intensity to permit reading of survival and equipment instructions. Batteries shall be of a type that does not deteriorate due to damp or humidity in the stowed liferaft.

6 DAVIT LAUNCHED RIGID LIFERAFTS

6.1 A liferaft for use with an approved launching appliance shall,

- a) when the liferaft is loaded with its full complement of persons and equipment, be capable of withstanding a lateral impact against the ship's side at an impact velocity of not less than 3.5 m/s and also a drop into the water from a height of not less than 3 m without damage that will affect its function; and
- b) be provided with means for bringing the liferaft alongside the embarkation deck and holding it securely during embarkation.

6.2 A rigid liferaft for use with an approved launching appliance shall, when suspended from its lifting hook or bridle, withstand a load of four times the mass of its full complement of persons and equipment.

7 EQUIPMENT

7.1 The normal equipment of every liferaft shall consist of,

- 1) one buoyant rescue quoits, attached to not less than 30 m of buoyant line;
- 2) one knife of the non-folding type having a buoyant handle and lanyard attached and stowed in a pocket on the exterior of the canopy near the point at which the painter is attached to the liferaft. In addition, a liferaft which is permitted to accommodate 13 persons or more shall be provided with a second knife which need not be of the non-folding type;
- 3) for a liferaft which is permitted to accommodate not more than 12 persons, one buoyant bailer. For a liferaft which is permitted

- to accommodate 13 persons or more, two buoyant bailers;
- 4) two sponges;
 - 5) two sea anchors each with a shock resistant hawser and tripping line is fitted, one being spare and the other permanently attached to the liferaft in such a way that when the liferaft inflates or is water-borne it will cause the liferaft to lie oriented to the wind in the most stable manner. The strength of each sea anchor and its hawser and tripping line, if fitted shall be adequate in all sea conditions. The sea anchors shall have means to prevent twisting of the line and shall be of a type which is unlikely to turn inside out between its shroud lines. The sea anchor permanently attached to davit launched liferafts and liferafts fitted on passenger ship shall be arranged for manual deployment only. All other liferafts are to have the sea anchor deployed automatically when the liferaft inflates ;
 - 6) two buoyant paddles;
 - 7) three tin openers and a pair of scissors. Safety knives containing special tin opener blades are satisfactory for this requirement;
 - 8) one first aid outfit in a waterproof case capable of being closed tightly after use;
 - 9) one whistle or equivalent sound signal;
 - 10) four rocket parachute flares complying to the requirements of International LSA code;
 - 11) six hand flares complying to the requirements of International LSA code;
 - 12) two buoyant smoke signals to the requirements of International LSA code;
 - 13) one waterproof electric torch suitable for Morse signalling together with one spare set of batteries and one spare bulb in a waterproof container;
 - 14) an efficient radar reflector, unless a survival craft radar transponder is stowed in the liferaft;
 - 15) one daylight signalling mirror with instructions on its use for signalling to ships and aircraft;
 - 16) one copy of the life saving signals as referred in relevant regulation of LSA code on a waterproof card or in a waterproof container;
 - 17) one set of fishing tackle;
 - 18) a food ration totaling not less than 10 000 kJ for each person the liferaft is permitted to accommodate. These rations should be palatable, edible throughout the recommended shelf life, and packed in a manner which can be readily divided and easily opened. The rations shall be kept in airtight packaging and be stowed in a watertight container;
 - 19) watertight receptacles containing a total of 1.5 l of fresh water for each persons the liferaft is permitted to accommodate, of which either 0.5 l per person may be replaced by a desalting apparatus capable of producing an equal amount of fresh water in two days or 1 l per person may be replaced by a manually powered reverse osmosis desalinators, capable of producing an equal amount of fresh water in two days;
 - 20) one rust proof graduated drinking vessel;
 - 21) anti sea sickness medicine sufficient for atleast 48 h and one seasickness bag for each person the liferaft is permitted to accommodate;
 - 22) instructions on how to survive [as per IMO resolution A.657 (16)];
 - 23) instructions for immediate action; and
 - 24) thermal protective aids sufficient for 10 percent of the number of persons the liferaft is permitted to accommodate or two, whichever is the greater.
- 7.2** Where appropriate the equipment shall be stowed in a container which, if it is not an integral part of, or permanently attached to, the liferaft, shall be stowed and secured inside the liferaft and be capable of floating in water for at least 30 min without damage to its contents.
- ## 8 ACCESS INTO RIGID LIFERAFTS
- 8.1** At least one entrance shall be fitted with a rigid boarding ramp to enable persons to board the liferaft from the sea. In the case of a davit-launched liferaft having more than one entrance, the boarding ramp shall be fitted at the entrance opposite to the bowing and embarkation facilities.
- 8.2** Entrances not provided with a boarding ramp shall have a boarding ladder, the lowest step of which shall be situated not less than 0.4 m below the liferafts' light waterline.
- 8.3** There shall be means inside the liferaft to assist persons to pull themselves into the liferaft from the ladder.
- ## 9 STABILITY OF RIGID LIFERAFTS
- 9.1** Unless the liferaft is capable of operating safely whichever way up it is floating, its strength and stability shall be such that it is either self-righting or can be readily righted in a seaway and in calm water by one person.
- 9.2** The stability of a liferaft when loaded with its full complement of persons and equipment shall be such that it can be towed at speed of up to 3 knots in calm water.

10 MARKINGS ON RIGID LIFERAFTS

The liferaft shall be marked with,

- a) name and port of registry of the ship to which it belongs;
- b) maker's name or trade-mark;
- c) serial number;
- d) name of approving authority;
- e) number of persons it is permitted to accommodate over each entrance in characters

not less than 100 mm in height of a color contrasting with that of the liferaft;

- f) SOLAS;
- g) type of emergency pack enclosed;
- h) length of painter;
- j) maximum permitted height of stowage above waterline (drop test height);
- k) launching instructions; and
- m) date when last serviced.

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